

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

WHITMAN, Michael, E.  
McGuireWoods, LLP  
1750 Tysons Boulevard  
McLean, VA 22102  
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 06 February 2001 (06.02.01)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference 02940120ta	
International application No. PCT/US00/05596	International filing date (day/month/year) 03 March 2000 (03.03.00)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address WHITMAN, Michael, E. Whitham, Curtis & Whitham 11800 Sunrise Valley Drive Suite 900 Reston, VA 20191 United States of America	State of Nationality	State of Residence
	Telephone No. 703-391-2510	
	Facsimile No. 703-391-9035	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input type="checkbox"/> the name	<input checked="" type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address WHITMAN, Michael, E. McGuireWoods, LLP 1750 Tysons Boulevard McLean, VA 22102 United States of America	State of Nationality	State of Residence
	Telephone No. 703-712-5067	
	Facsimile No. 703-391 2510	
	Teleprinter No.	
3. Further observations, if necessary: <b>The address indicated on the Demand has been considered as a request for change under Rule 92bis. In case of disagreement, the International Bureau should be notified immediately.</b>		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Simin Baharlou Telephone No.: (41-22) 338.83.38
--	--

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year)

06 February 2001 (06.02.01)

International application No.

PCT/US00/05596

Applicant's or agent's file reference

02940120ta

International filing date (day/month/year)

03 March 2000 (03.03.00)

Priority date (day/month/year)

03 March 1999 (03.03.99)

Applicant

STEWART, John, E.

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

21 September 2000 (21.09.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Simin Baharlou

Telephone No.: (41-22) 338.83.38

# PATENT COOPERATION TREATY

## PCT

REC'D 26 FEB 2002

WIPO

PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 02940120TA		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/05596	International filing date (day/month/year) 03 March 2000 (03.03.2000)	Priority date (day/month/year) 03 March 1999 (03.03.1999)	
International Patent Classification (IPC) or national classification and IPC IPC(7): G06G 7/60, 17/10, 7/48, 7/58; G06F 15/42, 17/00; A61B 6/00; A61M 31/00, 29/00 and US Cl.: 703/ 2, 11; 708/203; 600/476; 604/53; 606/195			
Applicant VIRGINIA COMMONWEALTH UNIVERSITY			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>0</u> sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input checked="" type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand 21 September 2000 (21.09.2000)		Date of completion of this report 27 September 2001 (27.09.2001)	
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230		Authorized officer Kevin Teska Telephone No. 703-305-9704	

**RECEIVED**  
APR 09 2002  
Technology Center 2100

Form PCT/IPEA/409 (cover sheet)(July 1998)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US00/05596

## I. Basis of the report

1. With regard to the elements of the international application:\*

☒ the international application as originally filed.

☒ the description:

pages 1-27 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the claims:

pages 28-31 as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-6 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

pages NONE as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

☒ the description, pages NONE

☒ the claims, Nos. NONE

☒ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).  
\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/05596

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The question whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

- ☐ the entire international application,  
☒ claims Nos. 1-4

because:

- ☒ the said international application, or the said claim Nos. 1-4 relate to the following subject matter which does not require international preliminary examination (*specify*):

Claims 1-4 are merely mathematical algorithms and thereby not statutory rule 67.1(i).

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. \_\_\_\_\_ are so unclear that no meaningful opinion could be formed (*specify*):

- ☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported by the description that no meaningful opinion could be formed.

- ☐ no international search report has been established for said claims Nos. \_\_\_\_\_

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.  
☐ the computer readable form has not been furnished or does not comply with the standard.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US00/05596

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. STATEMENT

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>5-7</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>5-7</u>	NO
Industrial Applicability (IA)	Claims <u>5-7</u>	YES
	Claims <u>1-4</u>	NO

### 2. CITATIONS AND EXPLANATIONS

Claims 5-7 lack novelty under PCT Article 33(2) as being anticipated by US 4,922,915 A (ARNOLD et al) 08 May 1990 (08.05.90), Abstract, figures 1-31, column 1, lines 33 et seq.; US 5,655,028 A (SOLL et al) 05 August 1997 (05.08.97), Abstract, figures 1-8, column 1, lines 8 et seq.; US 5,560,360 A (FILLER et al) 01 October 1996 (01.10.96), Abstract, figures 1-23, column 1, lines 26 et seq.; US 5,579,774 A (MILLER et al) 03 December 1996 (03.12.96), Abstract, figures 4A-4B, column 1, lines 18 et seq.; US 5,287,273 A (KUPFER et al) 15 February 1994 (15.02.94), Abstract, figures 1-13c, column 3, lines 49 et seq.; US 5,304,122 A (SCHWARTZ et al) 19 April 1994 (19.04.94), Abstract, figures 2-16, column 5, lines 22 et seq.; US 5,282,474 A (VALDES SOSA et al) 01 February 1994 (01.02.94), Abstract, figures 1-6, column 2, lines 24 et seq.; US 4,817,614 A (HASSLER et al) 04 April 1989 (04.04.89), Abstract, figures 1-24, column 4, lines 23 et seq.; US 5,825,670 A (CHERNOFF et al) 20 October 1998 (20.10.98), Abstract, figures 5-51, column 6, lines 16 et seq.; US 5,644,512 A (CHERNOFF et al) 01 July 1997 (01.07.97), Abstract, figures 5-35, column 5, lines 38 et seq.

Claim 1-4 lack industrial applicability as defined by PCT Article 33(4). Claims 1-4 are directed to pure mathematical algorithms.

----- NEW CITATIONS -----

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05596

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06G 7/60, 7/48, 7/58; G06F 17/00; A61B 6/00; A61M 31/00, 29/00  
US CL : 703/ 2, 11; 708/203; 600/476; 604/53; 606/195

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 703/ 2, 11; 708/203; 600/476; 604/53; 606/195

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST 1.1 , WEST 2.0

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,922,915 A (ARNOLD et al) 08 May 1990 (08.05.90), Abstract, figures 1-31, column 1, lines 33 et seq.	5-7
X	US 5,655,028 A (SOLL et al) 05 August 1997 (05.08.97), Abstract, figures 1-8, column 1, lines 8 et seq.	5-7
X	US 5,560,360 A (FILLER et al) 01 October 1996 (01.10.96), Abstract, figures 1-23, column 1, lines 26 et seq.	5-7
X	US 5,579,774 A (MILLER et al) 03 December 1996 (03.12.96), Abstract, figures 4A-4B, column 1, lines 18 et seq.	5-7
X	US 5,287,273 A (KUPFER et al) 15 February 1994 (15.02.94), Abstract, figures 1-13c, column 3, lines 49 et seq.	5-7
X	US 5,304,122 A (SCHWARTZ et al) 19 April 1994 (19.04.94), Abstract, figures 2-16, column 5, lines 22 et seq.	5-7
X	US 5,282,474 A (VALDES SOSA et al) 01 February 1994 (01.02.94), Abstract, figures 1-6, column 2, lines 24 et seq.	5-7
X	US 4,817,614 A (HASSLER et al) 04 April 1989 (04.04.89), Abstract, figures 1-24, column 4, lines 23 et seq.	5-7



Further documents are listed in the continuation of Box C.



See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
30 May 2000 (30.05.2000)

Date of mailing of the international search report  
13 JUNE 2000 (13.06.00)

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Authorized officer

Kevin Teska

Facsimile No.

Telephone No. 703/308-9100

*Rugenia Zogor*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05596

## C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,825,670 A (CHERNOFF et al) 20 October 1998 (20.10.98), Abstract, figures 5-51, column 6, lines 16 et seq.	5-7
X	US 5,644,512 A (CHERNOFF et al) 01 July 1997 (01.07.97), Abstract, figures 5-35, column 5, lines 38 et seq.	5-7
X.P	US 5,944,598 A (TONG et al) 31 August 1999 (31.08.99), Abstract, figures 4-35, column 3, lines 64 et seq.	5-7
X.P	US 5,983,251 A (MARTENS et al) 09 November 1999 (09.11.99), Abstract, figures 1-13, column 1, lines 16 et seq.	5-7
X.P	US 5,955,055 A (LEES et al) 21 September 1999 (21.10.99), Abstract, 1-13B, column 1, lines 19 et seq.	5-7



# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05596

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claim Nos.: 1-4  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 1-4 are merely mathematical algorithms and thereby not statutory under U.S.C. 35 101.
2. ☐ Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon	KR	Republic of Korea	PL	Poland		
CN	China	KZ	Kazakstan	PT	Portugal		
CU	Cuba	LC	Saint Lucia	RO	Romania		
CZ	Czech Republic	LI	Liechtenstein	RU	Russian Federation		
DE	Germany	LK	Sri Lanka	SD	Sudan		
DK	Denmark	LR	Liberia	SE	Sweden		
EE	Estonia			SG	Singapore		